HERMES Express

Technical Report

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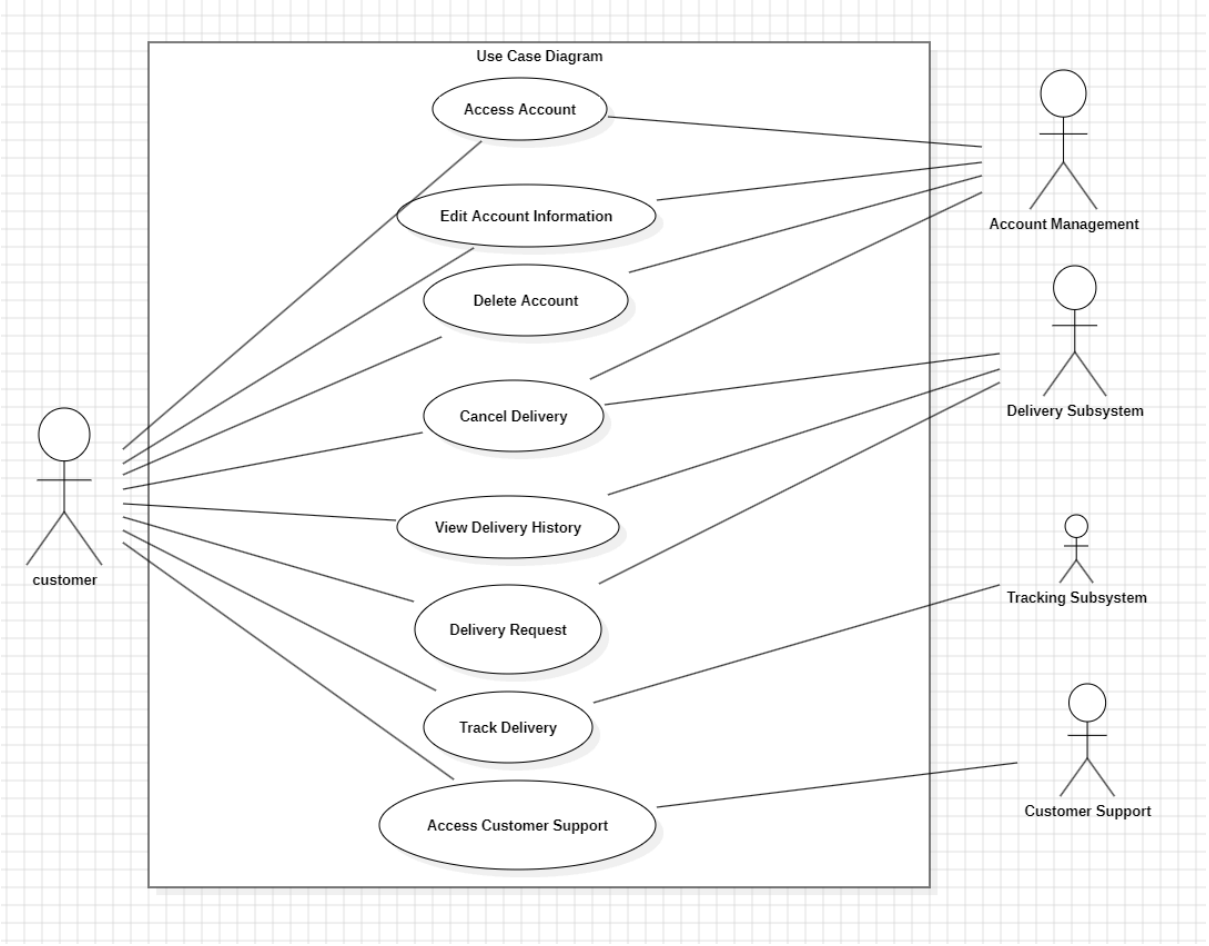
Introduction

This is a technical report for the Delivery Coordination System (DCS) , an online platform to manage and execute delivery requests for a wide range of shipment types to offer.

It highlights the crucial first steps in designing the system by determining its use cases, sequence of activities and more aspects through many diagram models. Then goes over the different interfaces of the system, with some initial prototype designs for realizing how the website and mobile application look and feel for its users.

Diagrams (Phase 1)

Use Case Diagram



This use case diagram showcases the most important use cases the customer will go through typically through our website/application and which subsystems are responsible. Event decomposition was used to find the use cases by putting our shoes in the typical user browsing and going through every event they would want or trigger.

<table>
<tr><td>Use Case Name</td><td>Access Account</td></tr>
<tr><td>Scenario</td><td>User wants explicitly to access his account or make a new one. Or implicitly by wanting a specific service done on the website and thus has to access his account.</td></tr>
<tr><td>Triggering Event</td><td>Clicking on one of the button prompts for the different services.</td></tr>
<tr><td>Brief Description</td><td>User wants to login or in case the user requested a service while not being logged in. The option to create a new account (register) is also given in case the user has no created accounts.
This showcases that individuals can browse the website without needing to have an account.</td></tr>
<tr><td>Actors</td><td>User [Customer - Business Representative - Anyone browsing the site]</td></tr>
<tr><td>Related Use Cases</td><td>Register is extended from this user case.</td></tr>
<tr><td>Stakeholders</td><td>Customers, Company, Customer support.</td></tr>
<tr><td>Preconditions</td><td>User is on the front page of the website and has clicked on an appropriate button of a service, or on the login/register buttons.</td></tr>
<tr><td>Postconditions</td><td>Users by this point must be logged in the website and are shown a different page according to the service they chose, or the home page if they have accessed their account explicitly.</td></tr>
<tr><td>Flow of activities</td><td>
<table>
<tr><th>Actor</th><th>System</th></tr>
<tr><td>1.Click on a service button.</td><td>1.1 Check for login status</td></tr>
<tr><td>2.Click on the login button.</td><td>1.2 Based on status, give an option to login/register.</td></tr>
<tr><td>3.Click on the register button.</td><td>1.3 After logging in, transfer to the service page.</td></tr>
<tr><td></td><td>2.1 Transfer user to login page.</td></tr>
<tr><td></td><td>2.2 Validate user information.</td></tr>
<tr><td></td><td>2.3 Log user in.</td></tr>
<tr><td></td><td>3.1 Transfer user to register page.</td></tr>
<tr><td></td><td>3.2 Check for information validity.</td></tr>
</table>
</td></tr>
</table>

	<table><tr><td></td><td>3.3 Insert account into database and log user in.</td></tr></table>
Exception conditions	User login info does not match one in our database, or register info is invalid, in both cases the user must try again and is shown the issue in his entered data.

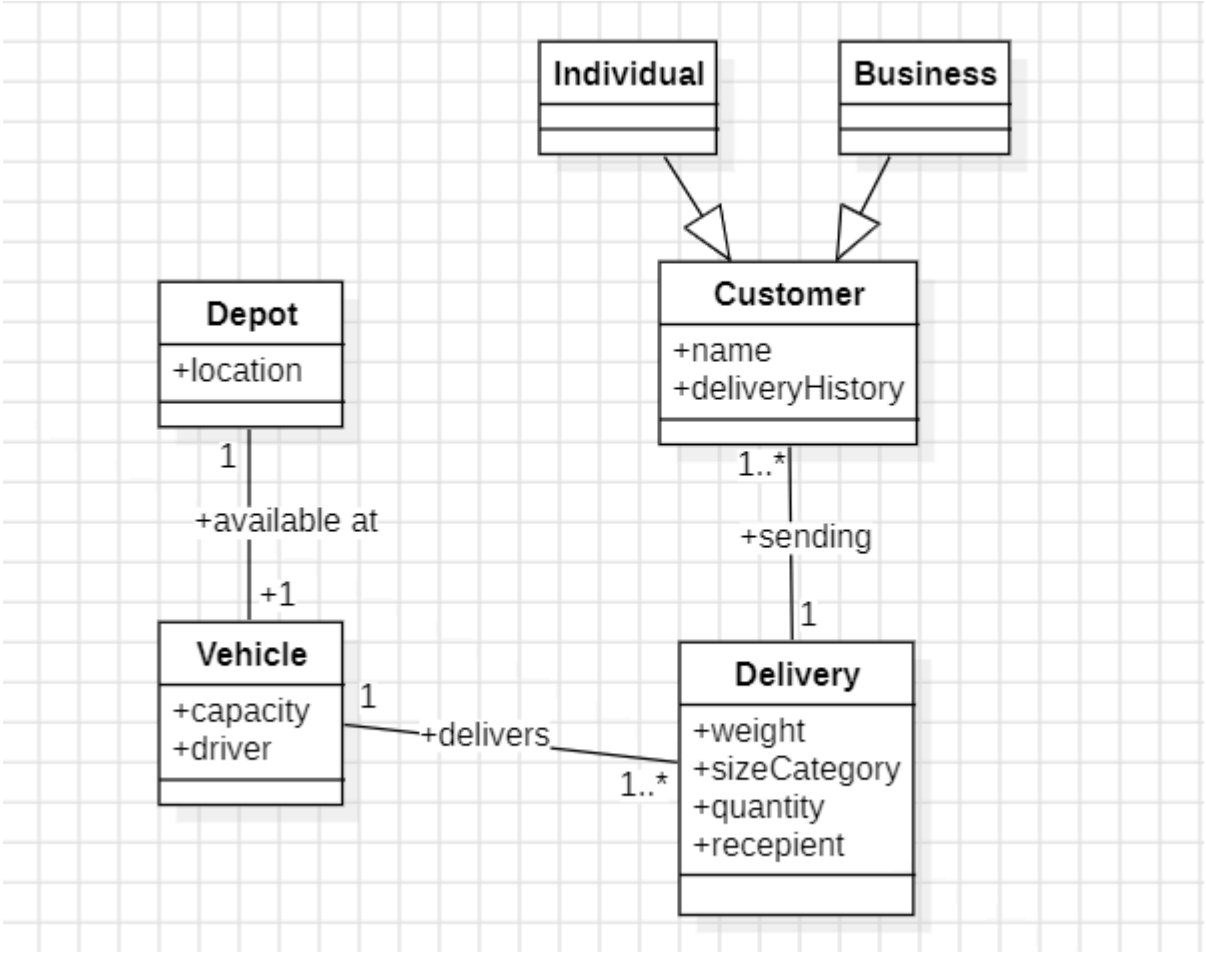
Use Case Name	Request Delivery.
Scenario	Customer wants to conduct a delivery.
Triggering Event	Clicking on the appropriate button prompt for a delivery.
Brief Description	This is the main service the system provides to its customers, allowing them to fully specify the details of the delivery including its destination, arrival time, weight etc.. They can choose from preset categories for convenience and edit information as they see fit. Then the system matches them with fitting transport options for the user to choose from, then is presented with options to pay for that transport, afterwards delivery process starts.
Actors	Customer with a logged in account.
Related Use Cases	None.
Stakeholders	Customers, Delivery manager, Transport driver(s).
Preconditions	Customer is logged in.
Postconditions	A delivery was requested by the customer with all its associated information saved to be used for the tracking process.
Flow of activities	<table><tr><th>Actor</th><th>System</th></tr><tr><td>1.Click on the delivery button.</td><td>1.1 Present categories</td></tr><tr><td>2. Choose transport option</td><td>1.2 Present manual information</td></tr><tr><td>3. Choose payment option</td><td>1.3 Create and present a list of transports.</td></tr></table>

	<table><tr><td></td><td>2.1 Present payment options</td></tr><tr><td></td><td>3.1 Present needed info</td></tr><tr><td></td><td>3.2 Verify Payment</td></tr><tr><td></td><td>3.3 Initiate Delivery Process.</td></tr></table>
Exception conditions	When the information entered for the delivery is invalid, the page informs the user and requires the correct information in the needed fields. If payment info is invalid or otherwise(i.e not enough money in account), the user is informed accordingly and correct information is requested.

Use Case Name	Manage Delivery (Cancel/Track)
Scenario	The customer wants to view the details of a delivery that they have already made.
Triggering Event	Clicking on the button prompt to view a specific delivery within their current delivery list.
Brief Description	This use case allows the user to view details of their delivery, including its current location, status and ETA. Along with performing other operations on it.
Actors	Customer.
Related Use Cases	Track Delivery: Views current location and status of the delivery. Cancel delivery: Option to cancel the delivery, depending on status of delivery, cancellation procedures could be different.
Stakeholders	Customers, Company, Drivers, Vehicle managers.
Preconditions	Customers must be logged in, have at least 1 in-progress delivery.
Postconditions	Customer is sent to a different web page, and has finished what they want from it, with any changes they made being either done or in progress.
Flow of activities	<table><tr><td>Actor</td><td>System</td></tr></table>

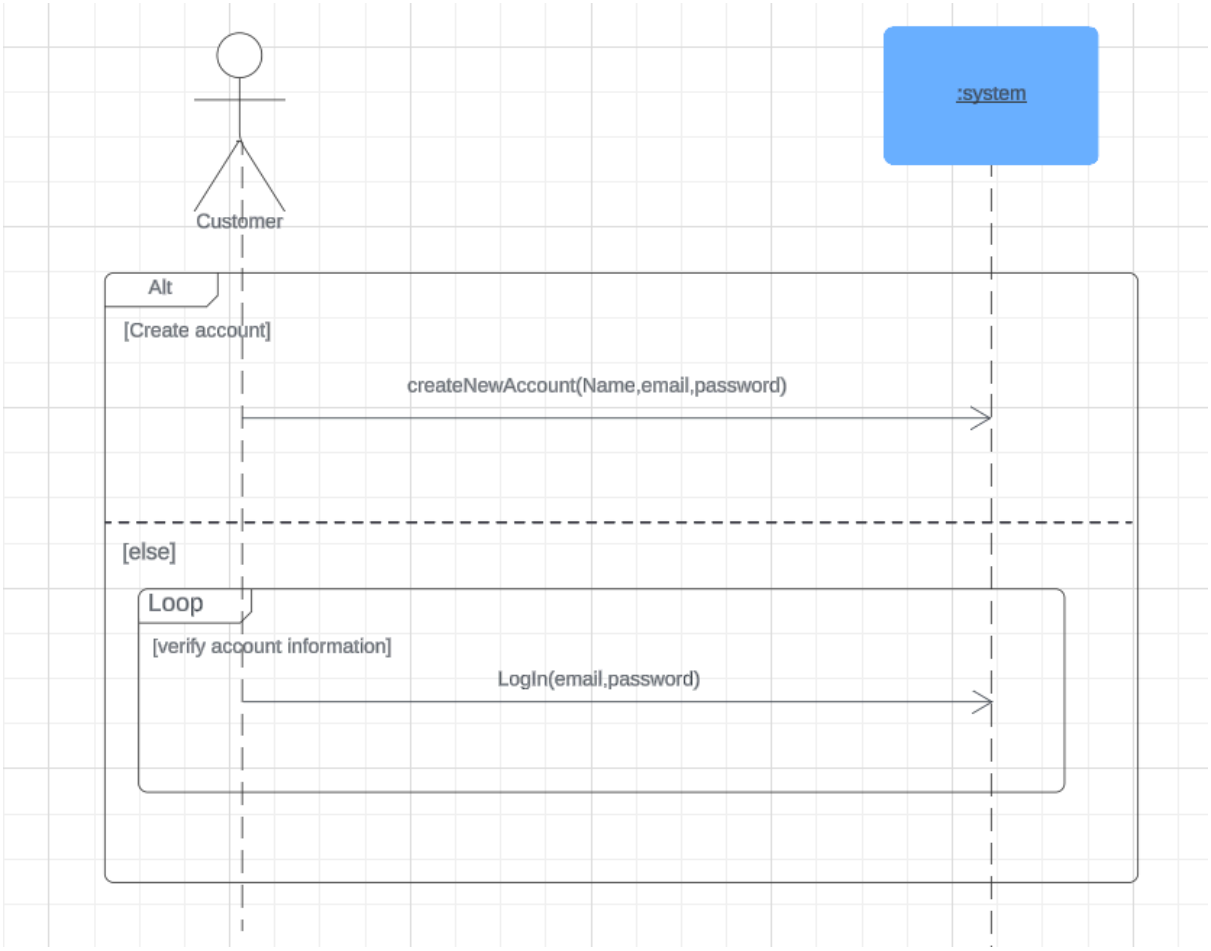
	1.Click on a view delivery button. | 1.1 Transfer user to delivery page. 2. Choose to track the delivery | 2.1 Present delivery location tracking and status. 3. Choose to cancel delivery. | 3.1 Present consequences to users depending on delivery status. 4. Choose to contact the driver. | 3.2 Confirm user intention to cancel. | 3.3 Cancel delivery, inform subsystems/drivers etc.. | 4.1 Present driver information.
Exception conditions	None.

Domain Model Class Diagram

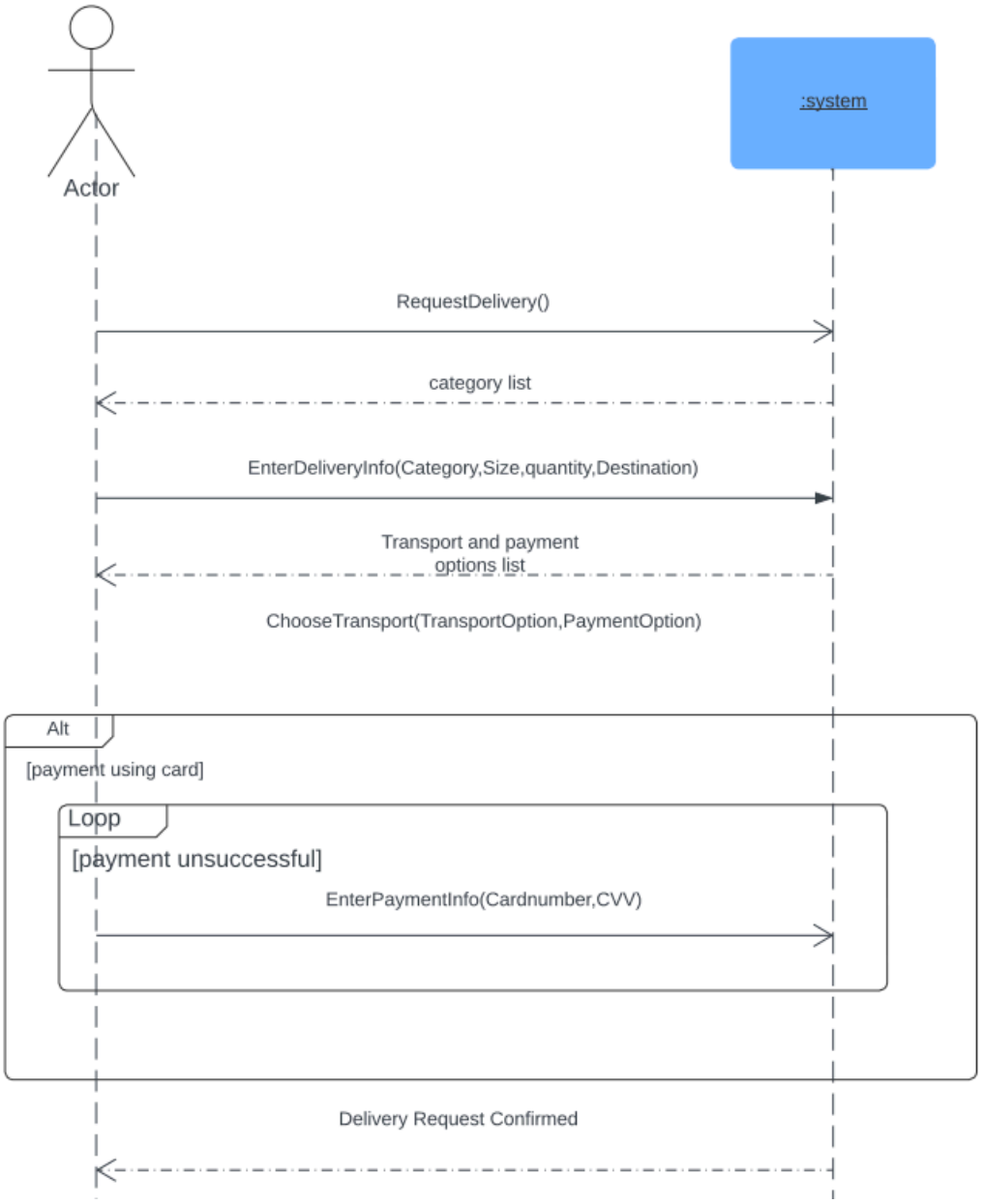


This Domain Model class diagram represents the four main classes in the application. The “Customer” class represents the object the company deals with, either a single individual or a business with a business account. The “Delivery” class represents the object the company handles in its operations, as the customers order deliveries. The class “Vehicle” represents the object of the mode of transportation used to deliver the deliveries the customers order. Each delivery is assigned a delivering vehicle. The last class is the “Depot” class. Depots are important because they are where the company’s vehicles are parked so their placement is what determines vehicle availability. Customers can also drop off their deliveries at or receivers can them up at the company’s depots.

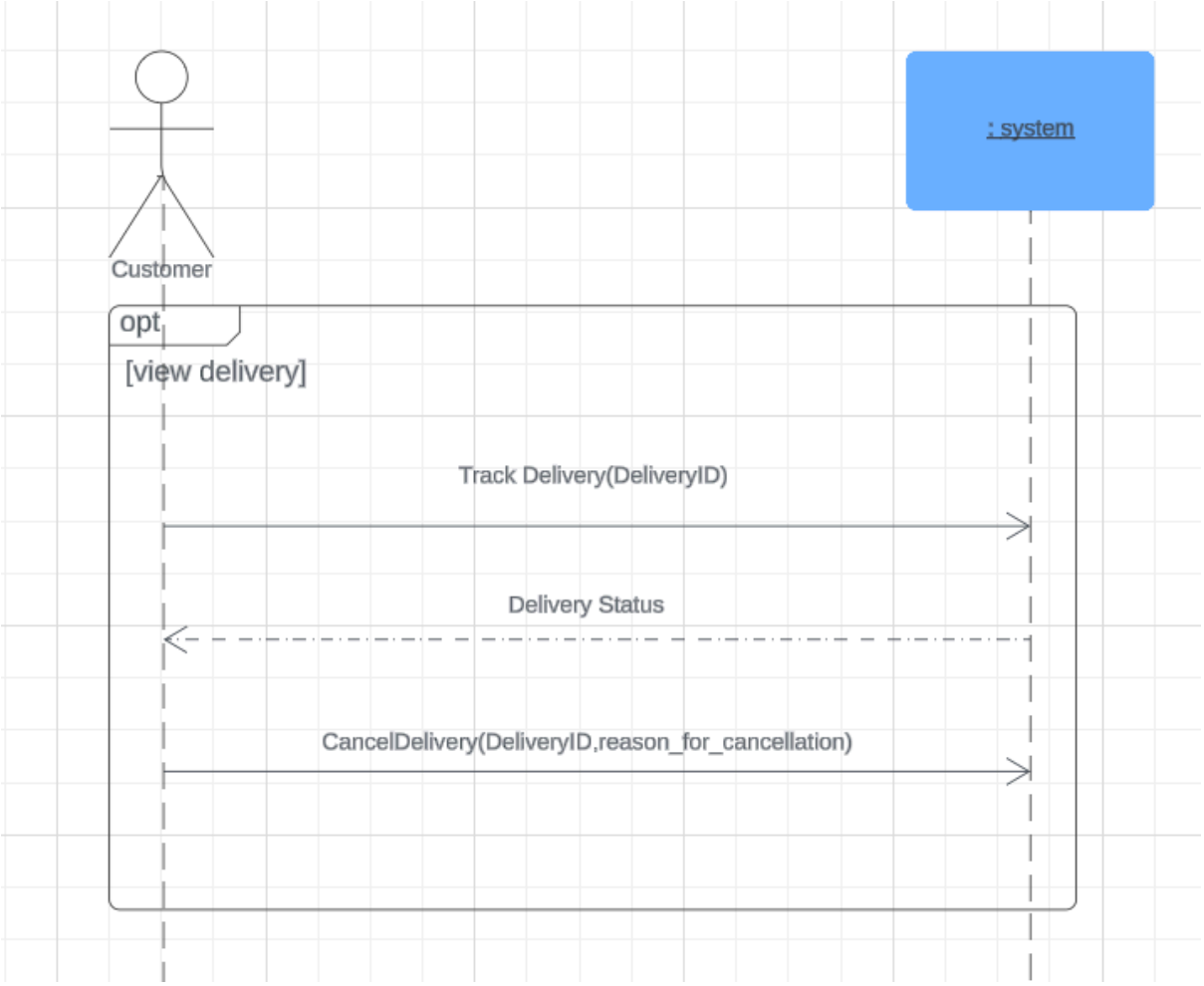
System Sequence Diagrams



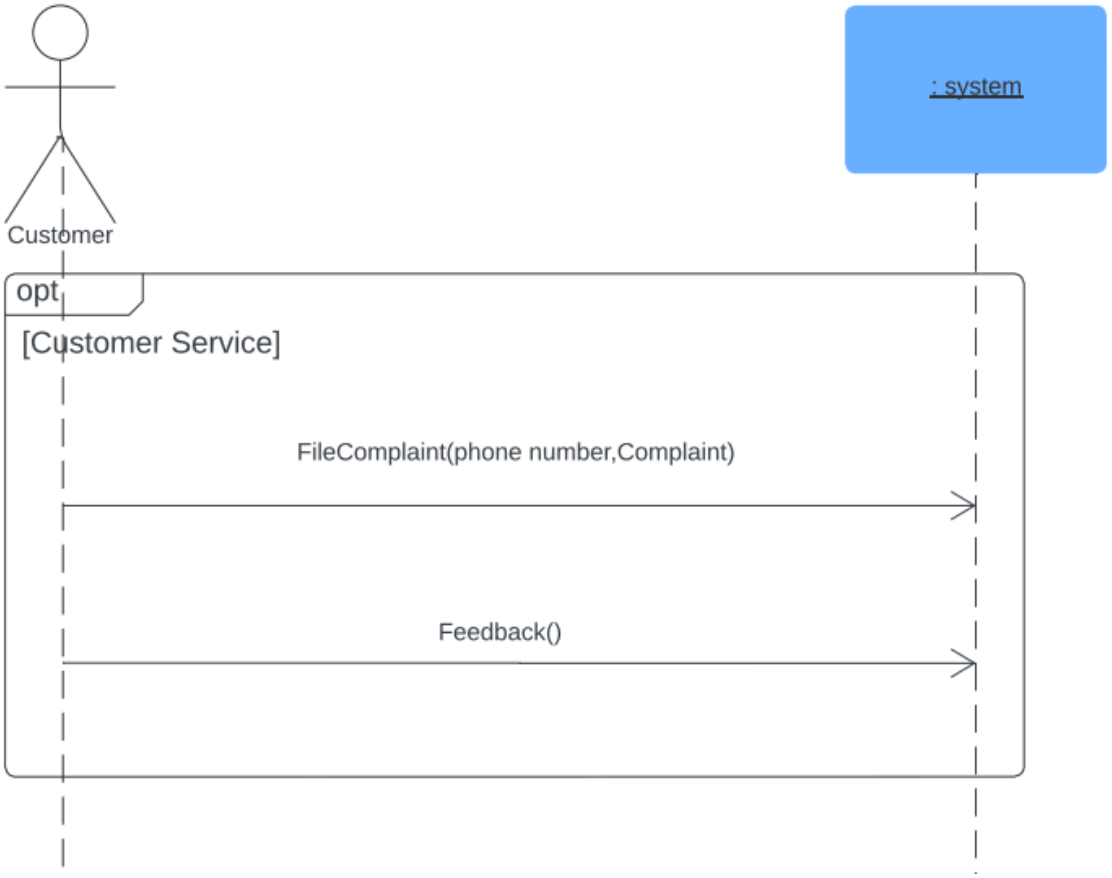
The system sequence diagram above showcases the alternative options users are given when accessing their account such that if they choose create account they should enter their information which is used as a parameter in creating their account , the “else” option is the log in where the user is asked to enter their email address and password and then the log in function keeps executing until a record is found within the system matching the entered information



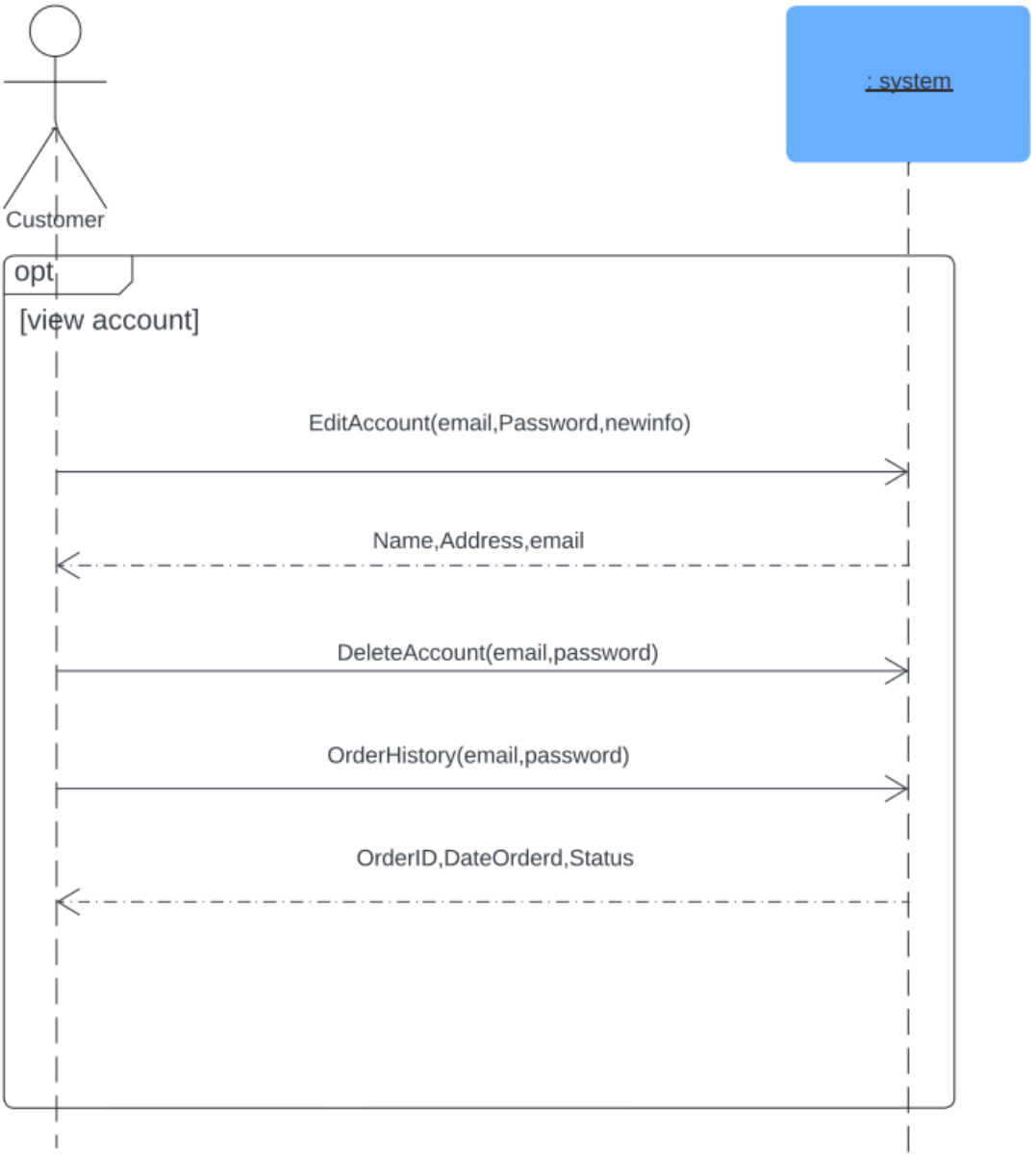
The above system sequence diagram represents the Request Delivery use case where the customer clicks on the request delivery button in the home page they are directed to page with different delivery categories, user then chooses the category and fills in the necessary information , system then returns the transport list with payment details displayed , user then chooses transport and payment , if they choose payment using card they would enter a loop that asks for a payment method until a valid one is entered that produces a successful transaction and lastly the delivery confirmation is displayed



This system sequence Diagram represents the use cases Track Delivery and Cancel Delivery where the user is provided with an option menu if they choose to track their delivery using the Delivery ID the system then returns the delivery status with any necessary updates and if they choose to cancel the delivery they should provide the system with the DeliveryID and the reason they choose to cancel the delivery



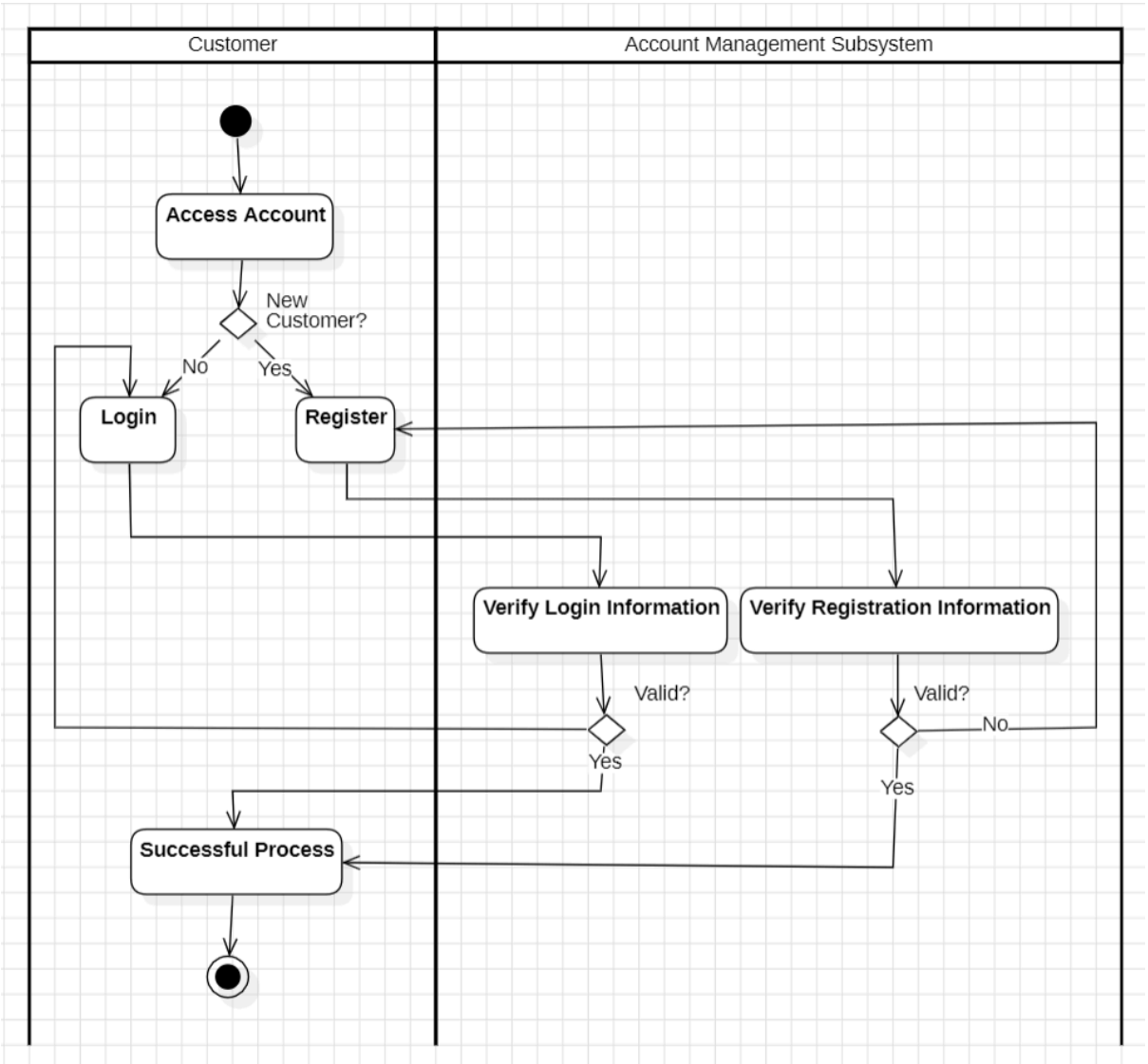
The above System Sequence Diagram describes the “Access Customer Support” use case , such that the user is given 2 option either they can file a complaint where they provide their phone number so that a representative can follow up and their complaint or they can leave their feedback by filling a form



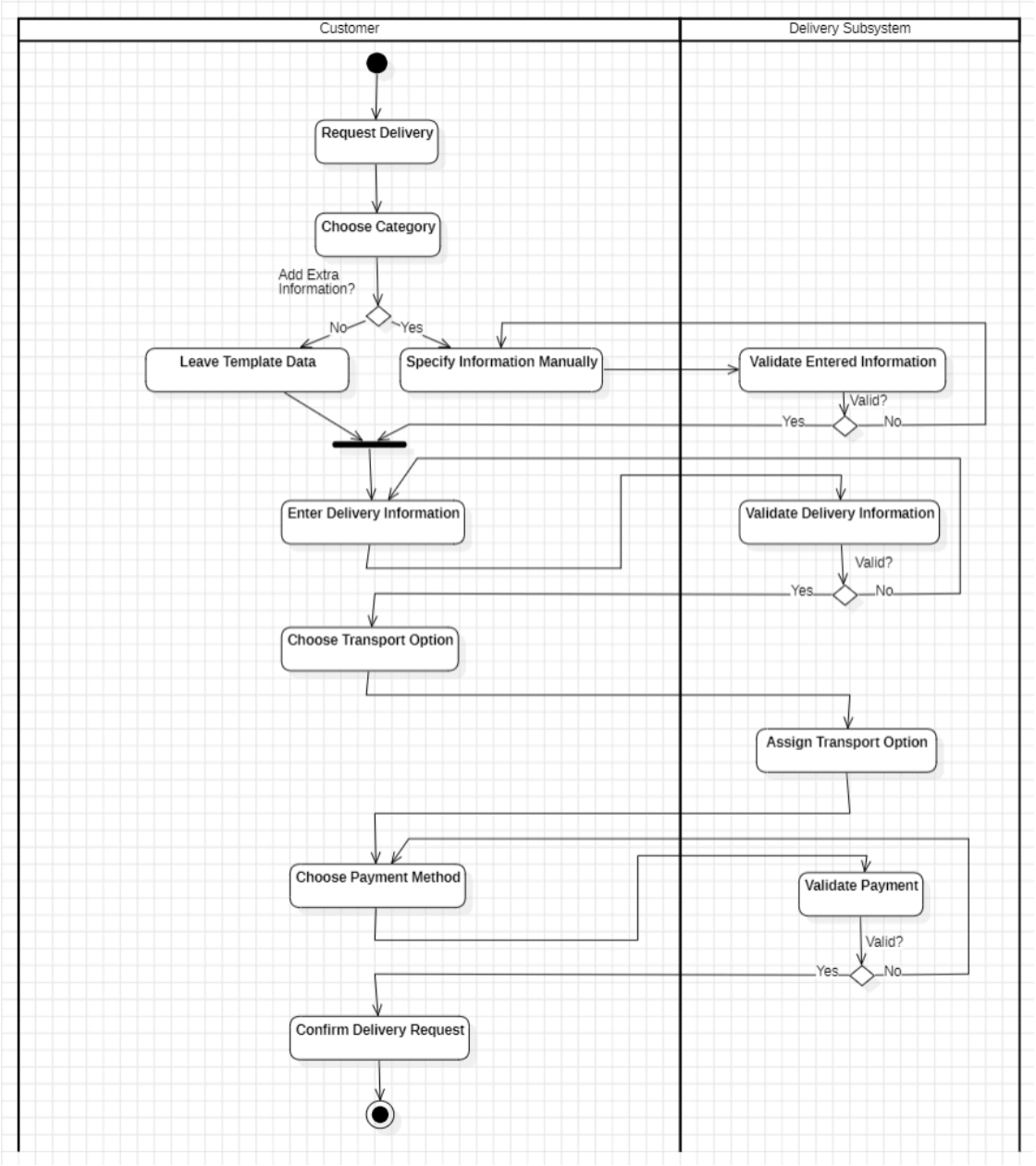
This system sequence diagram describes the flow of the use cases that imply managing your account. From the Account page the user has 3 options

1. Edit Account Information : user inputs their email address and password to confirm their identity for security reasons and then they are able to edit any field they would like so the email address , password and the new information are sent to the system to alter the existing information and then return the new information to be displayed in the account page
2. Delete Account : user provides the email address and password to confirm their identity as well as to be sent to system as the record to be deleted
3. Order History : user provides their email address and password to the system and the system returns all the records containing orders made by the user

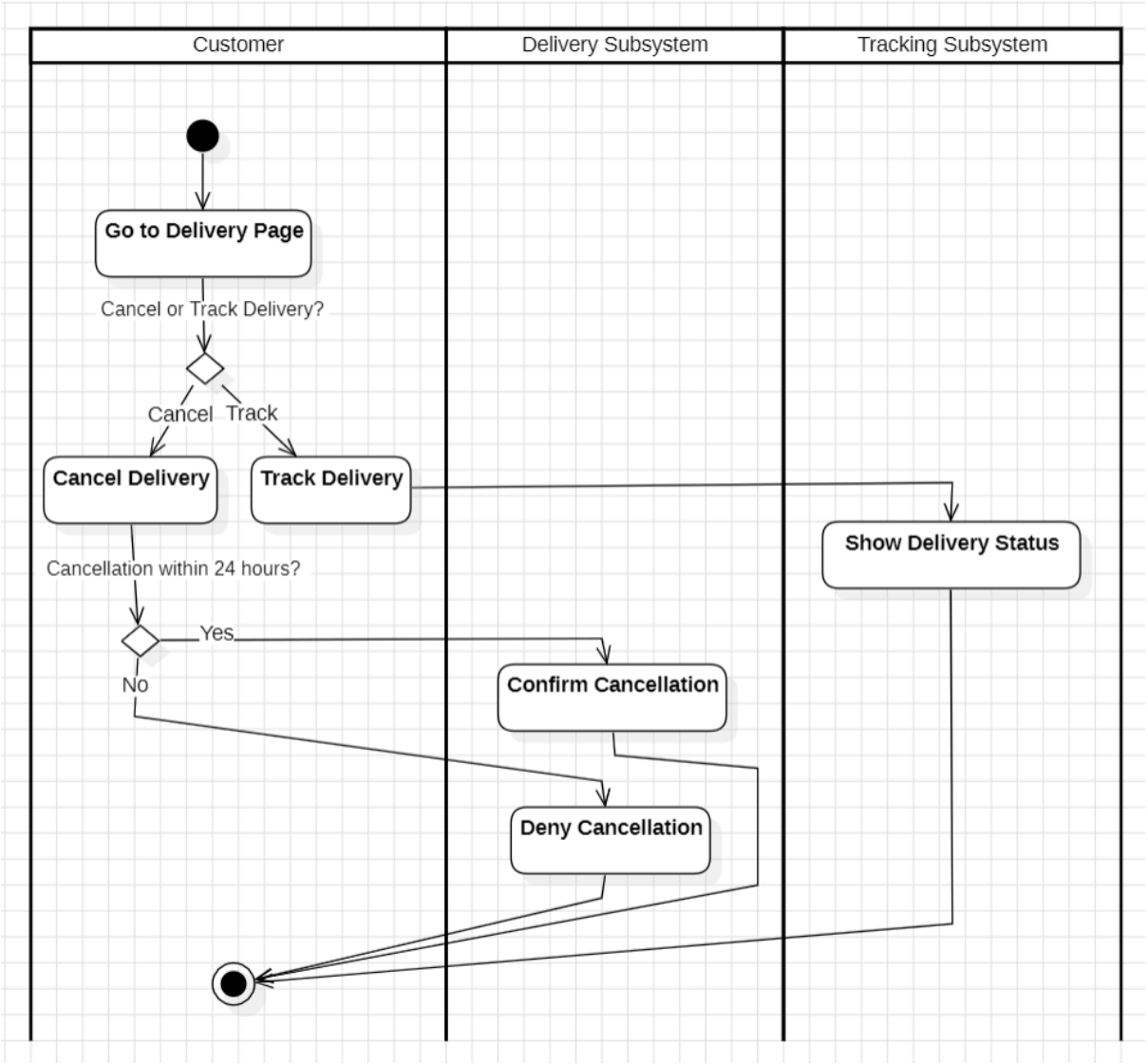
Activity Diagrams



This activity diagram shows the login/registration processes that are required when accessing an account. Once the customer requests a service, they must have an account by registering in the system, or they can log into their account if they have one. The customer enters their credentials, then the Account Management subsystem checks the validity of the entered information. If the information is valid, the process is successful, and if not, the customer is required to enter their credentials again.



This activity diagram describes the Request Delivery use case. When requesting a delivery, the customer chooses a category for the items to be delivered, and template data is automatically filled out giving the option for the customer to modify/specify any necessary information in the template. If the customer specifies any information manually, the Delivery subsystem validates this information, and if it is valid, the customer moves on to the next steps. After the customer chooses a transport option for the delivery, the subsystem assigns this information to the delivery. Then, the customer chooses a payment method, after which the subsystem validates the payment. If the payment was valid, the customer confirms the delivery request and it is submitted to the system.



This activity diagram focuses on what happens after a delivery request is submitted to the system. The customer can either choose to track their delivery or cancel it. If the customer chooses to cancel a delivery, the delivery subsystem checks whether the delivery was made within 24 hours of the request for cancellation, if the system confirms the cancellation, and if not, the request is denied and the process is terminated. When the customer chooses to track a delivery, the tracking subsystem moves on to showing them the delivery status, and when the customer is done, the process is terminated.

Phase(2)

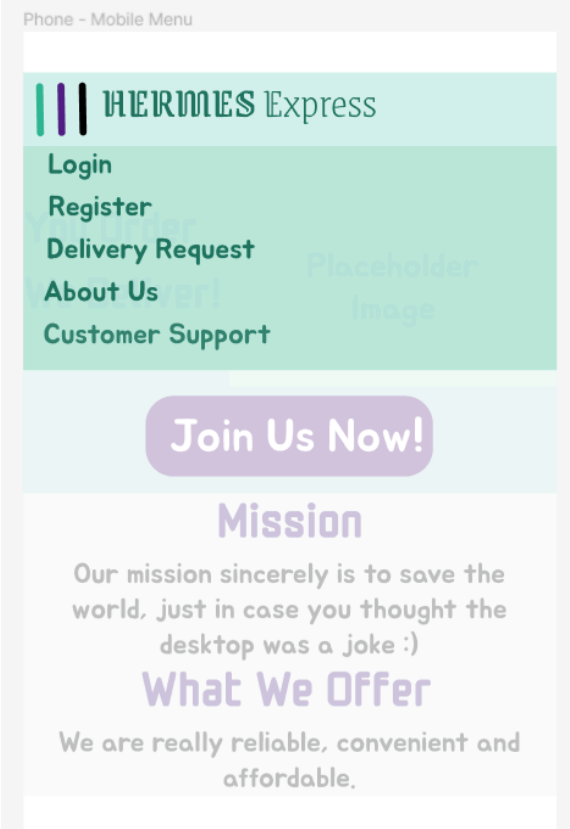
Menus

Subsystem	Use Case	Users/Actors
Account Management	Access Account	Customer
Account Management	Edit Account Information	Customer
Account Management	Delete Account	Customer
Delivery Management	Cancel Delivery	Customer
Delivery Management	View Delivery History	Customer
Delivery Management	Delivery Request	Customer
Tracking System	Track Delivery	Customer
Customer Support	Access Customer Support	Customer

Design

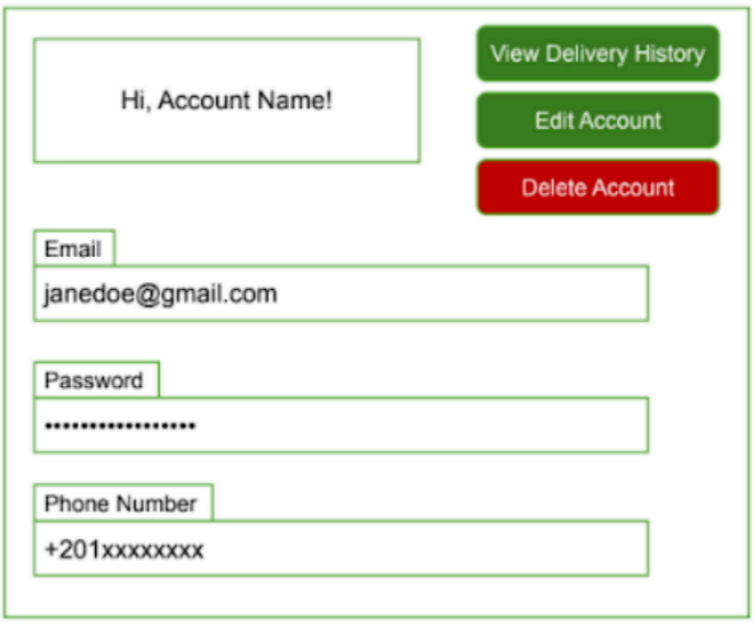
Home Page Menu

Design from mobile interface on Figma



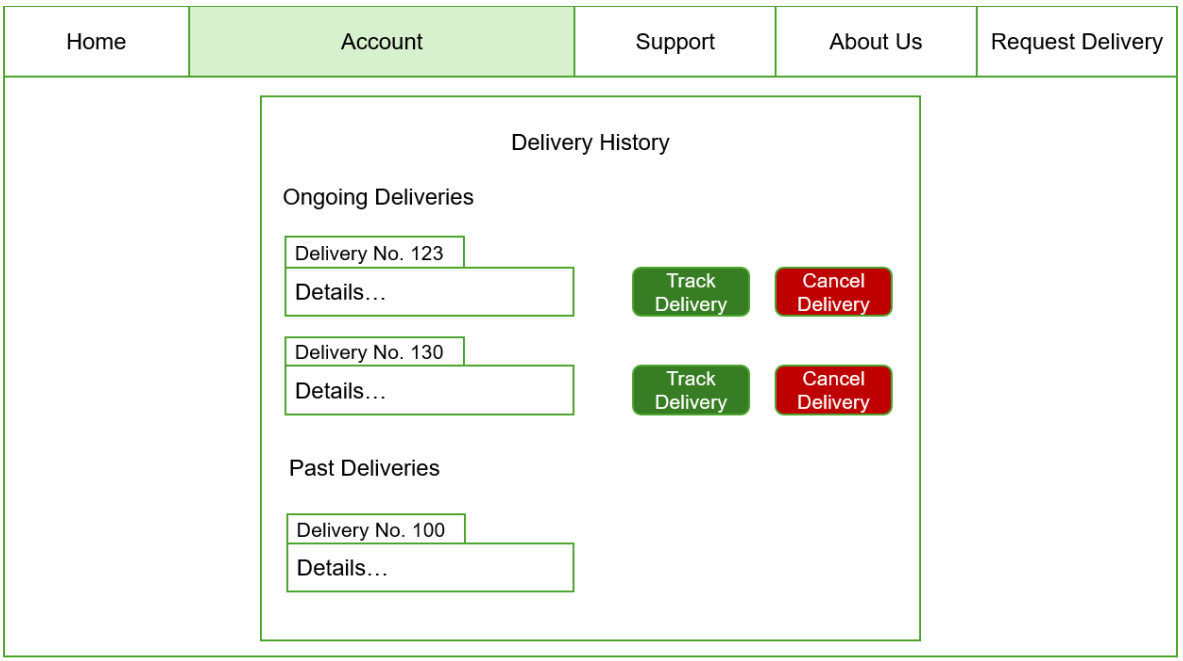
Manage Account Option

Initial design of menu from storyboard



Manage Delivery Menu

Initial design of menu from storyboard



System Interfaces

- Customer Interface -- Payment API
  - (Input: Customer Payment Info) | (Output: Payment Confirmation)
    - When the customer chooses to pay with a card they are directed to the Payment API page to process the payment

- Customer Interface -- Database
    - (Input: Account Info) | (Output: Account Found)
        - When the customer logs in they type their email address and password , which is verified by checking the database containing customer information
    - (Input: Registration Info) | (Output: Saved successfully.)
        - When a customer creates a new account and enters their information a new record is created in the database to store the account information
    - (Input: New Account Info) | (Output: Edited Successfully)
        - If the customer chooses to edit their account information , the record is altered in the database reflecting the new changes
    - (Input: customer email and password) | (Output: Deleted successfully.)
        - If a customer wishes to delete their account , the record containing their information is deleted from the database
    - (Input: Account Info) | (Output: Delivery History List)
        - In the manage account page the user can view their delivery history which is a record or multiple record stored in the database

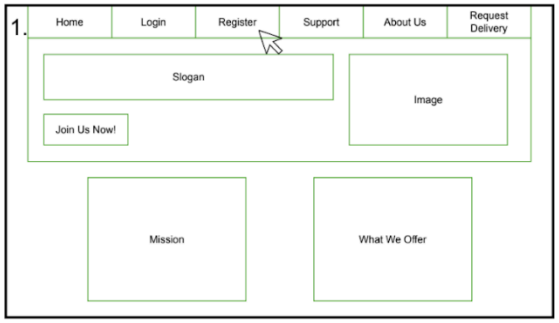
- Customer Interface -- Logistics
    - (Input: Delivery Info) | (Output: Delivery In Process)
        - When the customer requests a delivery they fill in all the details which is then forwarded to the logistics subsystem to sort and act upon them accordingly

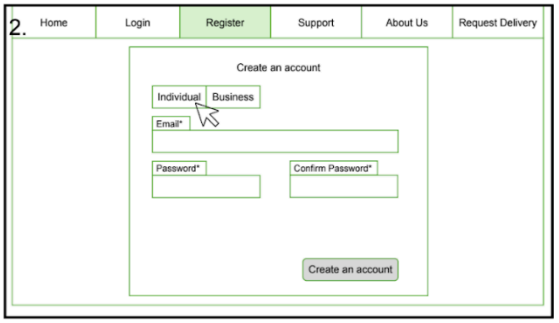
- Customer Interface – Customer Support
    - (Input: Feedback/Complaint) | (Output: Received Successfully)
        - In the customer support page the user can file a complaint or leave feedback which is then forwarded to the customer support subsystem so that they can follow up on the complaint or consider some of the suggestion provided by the feedback form

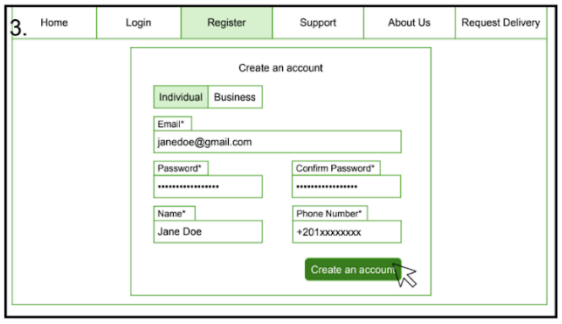
- Customer Interface – Tracking Subsystem
    - (Input: Delivery Info) | (Output: Delivery Status)
        - To track their Delivery the user types on their order number and the tracking subsystem provides them with the status of the order or the current warehouse where the package currently resides

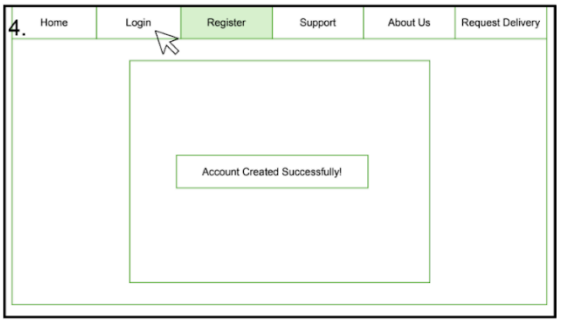
Storyboards

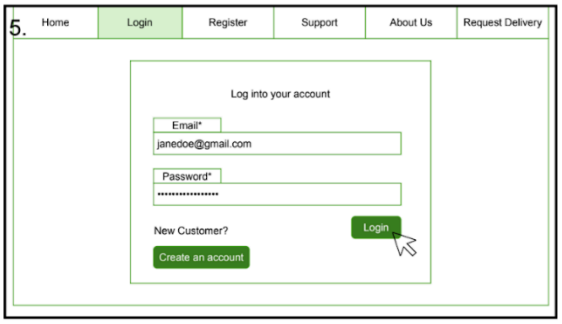
Login/Register Storyboard











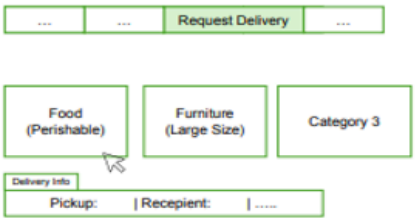
This storyboard depicts the process by which a customer (individual/business) creates a new account.

1. The customer begins by clicking on the register button in the taskbar.
2. Then the page changes into the register page, where they can choose to create an individual or a business account, and then they enter their information.
3. The “create an account” button is activated once the necessary information is entered into the registration form, and once the customer clicks on the button, they are taken to a page informing them that their account has been created successfully.
4. When a customer clicks on the login button in the taskbar, they are redirected to the login page.
5. The customer can enter their login information, and if they do not have an account, they are given the option of creating one with the create an account button.
6. After hitting the login button, the customer is redirected to their account page, where they can view their delivery history, edit their account, or delete it.

Request Delivery Storyboard

Home Page

1



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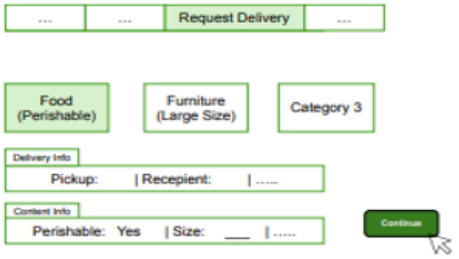

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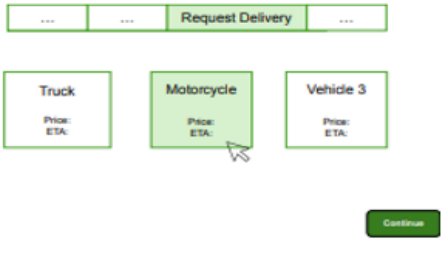

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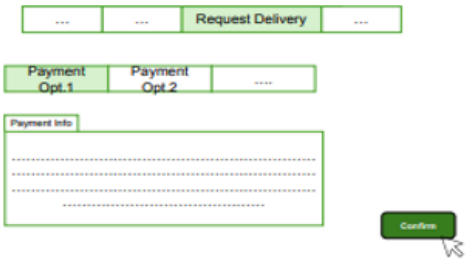
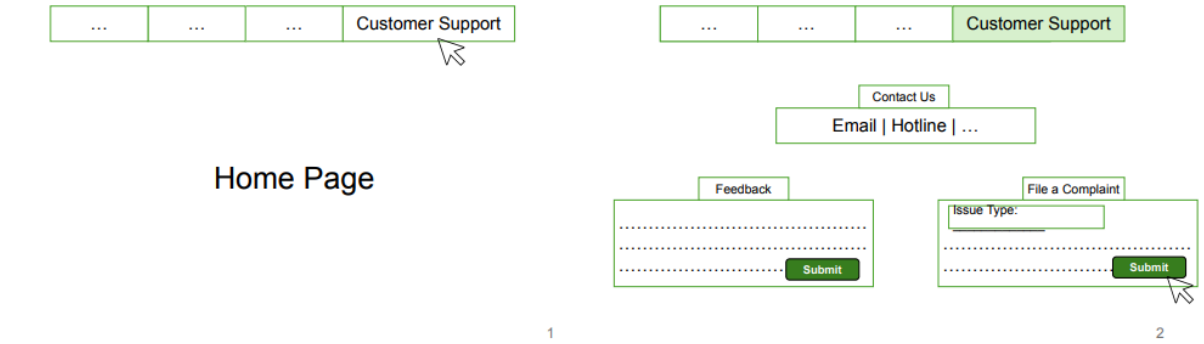


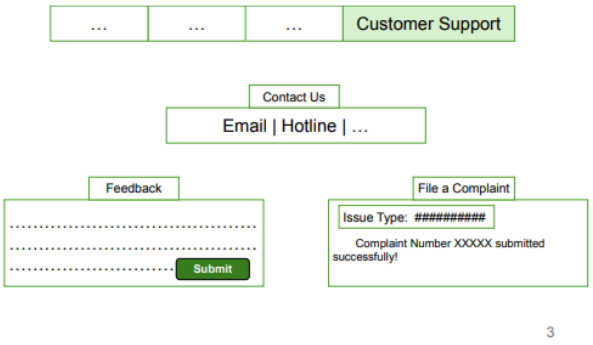
5

This storyboard shows the process of requesting a delivery.

1. It starts in the homepage, by clicking on the “Request Delivery” button in the taskbar.
2. Then, the customer is taken to the request delivery page, where they first choose the category of the items to be delivered, and enter any additional delivery information.
3. A “Continue” button appears after a category is chosen.
4. After clicking on the “Continue” button, the page redirects to the transport options page.
5. After a transport option is selected, and the customer clicks on the “Continue” button, they move on to the next page, which is the payment options page, where a payment method is chosen. Finally, the customer clicks on the “Confirm” button to confirm the delivery.

Customer Support Storyboard





This storyboard focuses on what occurs within the customer support page.

1. The customer begins by clicking on the “Customer Support” button in the taskbar of the homepage.
2. Then, they are redirected to the customer support page, where they can find contact information in the “Contact Us” section, submit any feedback in the feedback form, or file a complaint through the complaint form. In the complaint form, the customer can choose the type of the issue that they encountered, and specify any other concerns they have, then they can click on the “Submit” button to submit the complaint.
3. After clicking on the “Submit” button, the complaint form displays a message with the customer’s complaint number and that the complaint was issued successfully.

User Interfaces

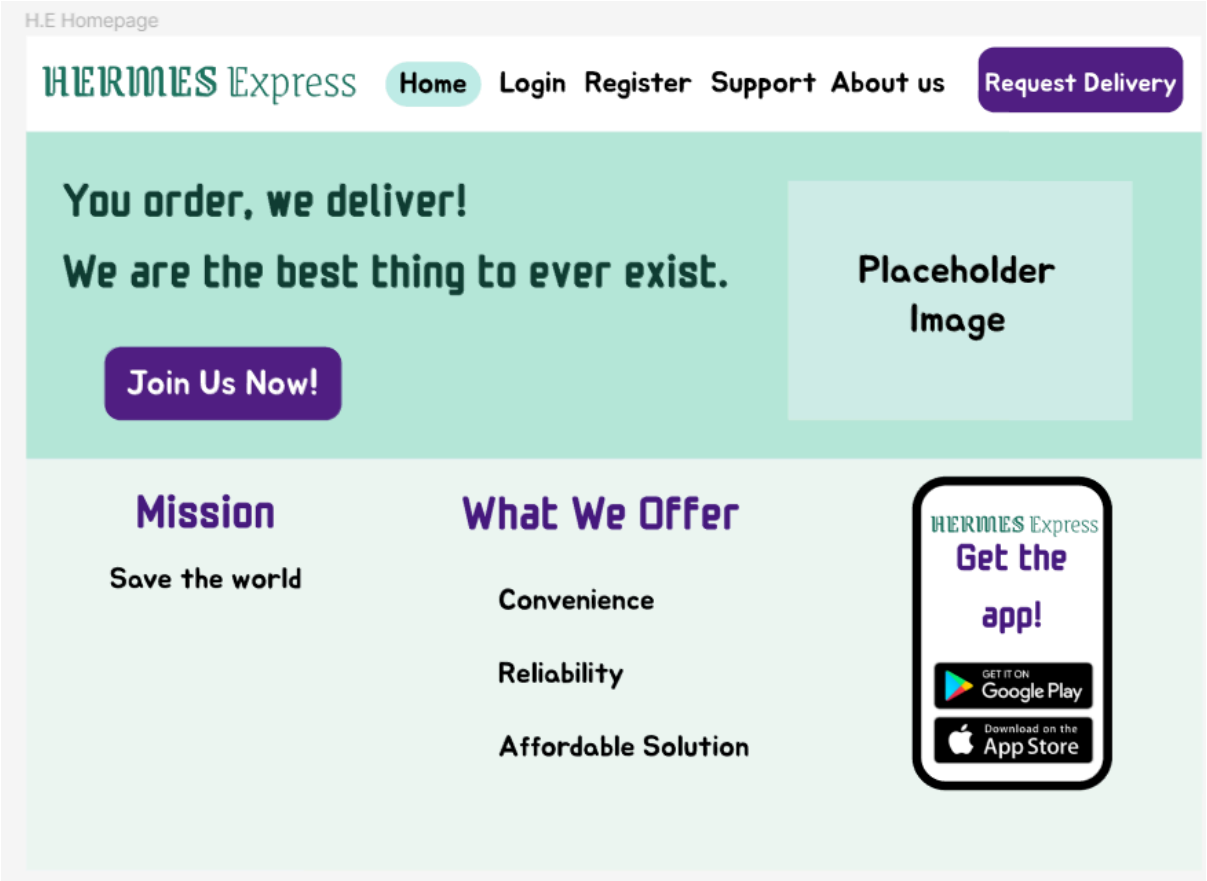
- Home Page
    - The home page offers easy access to all functionality of the website.
    - Includes a taskbar with the options (Login / Register / Delivery Request / About Us / Contact Us)
- Login Page
    - User provides their email address and password to access their account

- Register Page
    - New customers can create their account by providing the required information along with a unique email and password
- Account Page
    - Account Information is displayed along with options to Delete Account , Edit Account Details or View Delivery History
        - Delete Account : if user chooses to delete their account they will be directed to our home page
        - Edit Account Details : user will be directed to a page with their details displayed in their respective field so they could see which field they would like to edit and enter the new information , the user will have to click on the save button so that the new information is updated to their account and they are directed to the account page where they can see the changes
        - View Delivery History: user is directed to a page with their Delivery History in a descending order with all necessary details displayed in a tabular form
- Delivery Process Page
    - Users are provided with a list of delivery categories with a small description under each, that they can choose from which will then expand to display the fields regarding the Delivery Information with some of them auto filled to suit the chosen category however users have the option to fill them manually.
    - They will then be directed to a page with the Transport Options available with a description displayed under each option showing cost and ETA
    - Finally they are directed to a payment page where they choose their preferred payment option
        - If they choose Cash on Delivery they will receive the Delivery Confirmation and be directed to the home page
        - If the choose Card they will be redirected to a Payment API to process the payment and when successful display the delivery confirmation and direct them to the homepage
- Manage Delivery Page
    - Option list displayed to allow user to Cancel their Delivery or Track it
        - If the user chooses to cancel their Delivery they are provided with fields to enter their Delivery number and the reason of cancellation
        - If they choose to track their delivery they will be provided with a field to write their Delivery number and submit and their order status will be displayed
- Customer Support Page
    - Options displayed to file a complaint or submit feedback and the contact information is also displayed if the user would like to directly communicate with a representative

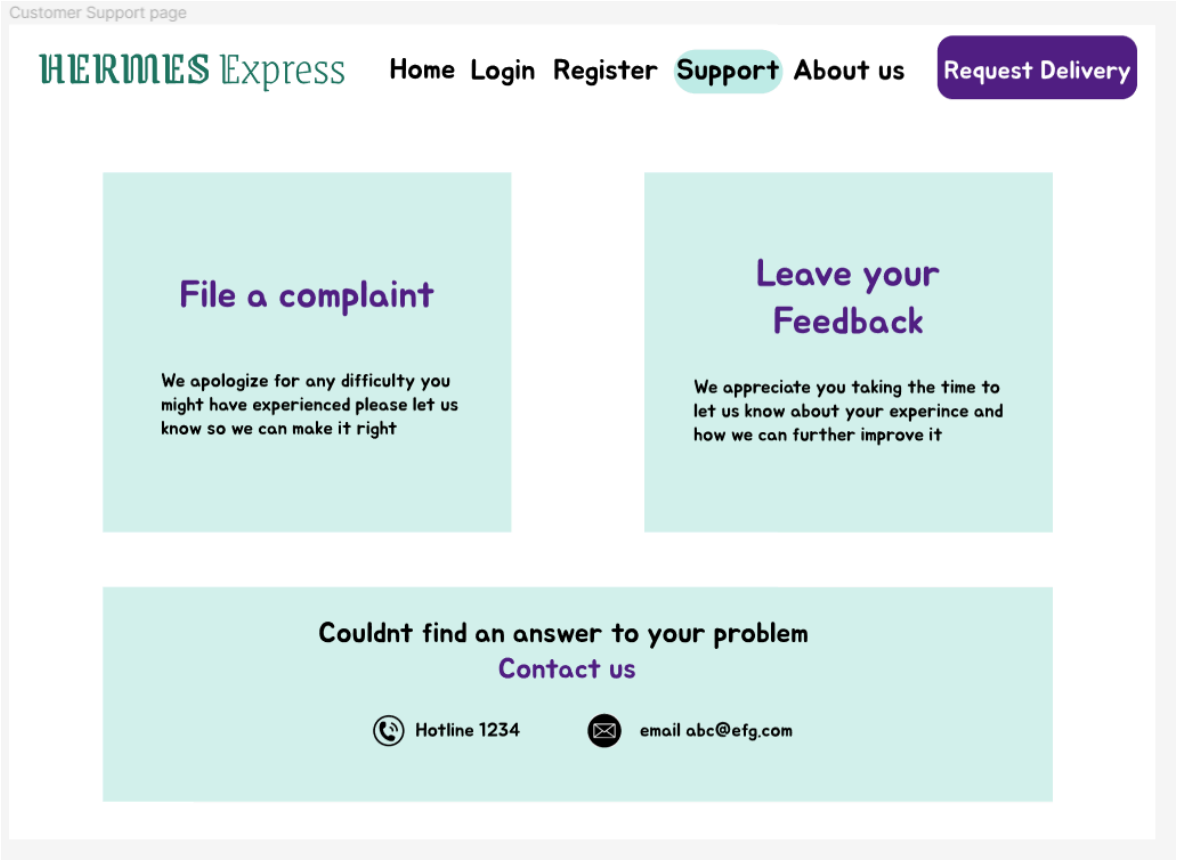
Desktop UI Designs

The following designs for both desktop and mobile were all designed using the *Figma* interface design tool.
A temporary name and logo as presented was chosen as “HERMES Express”.

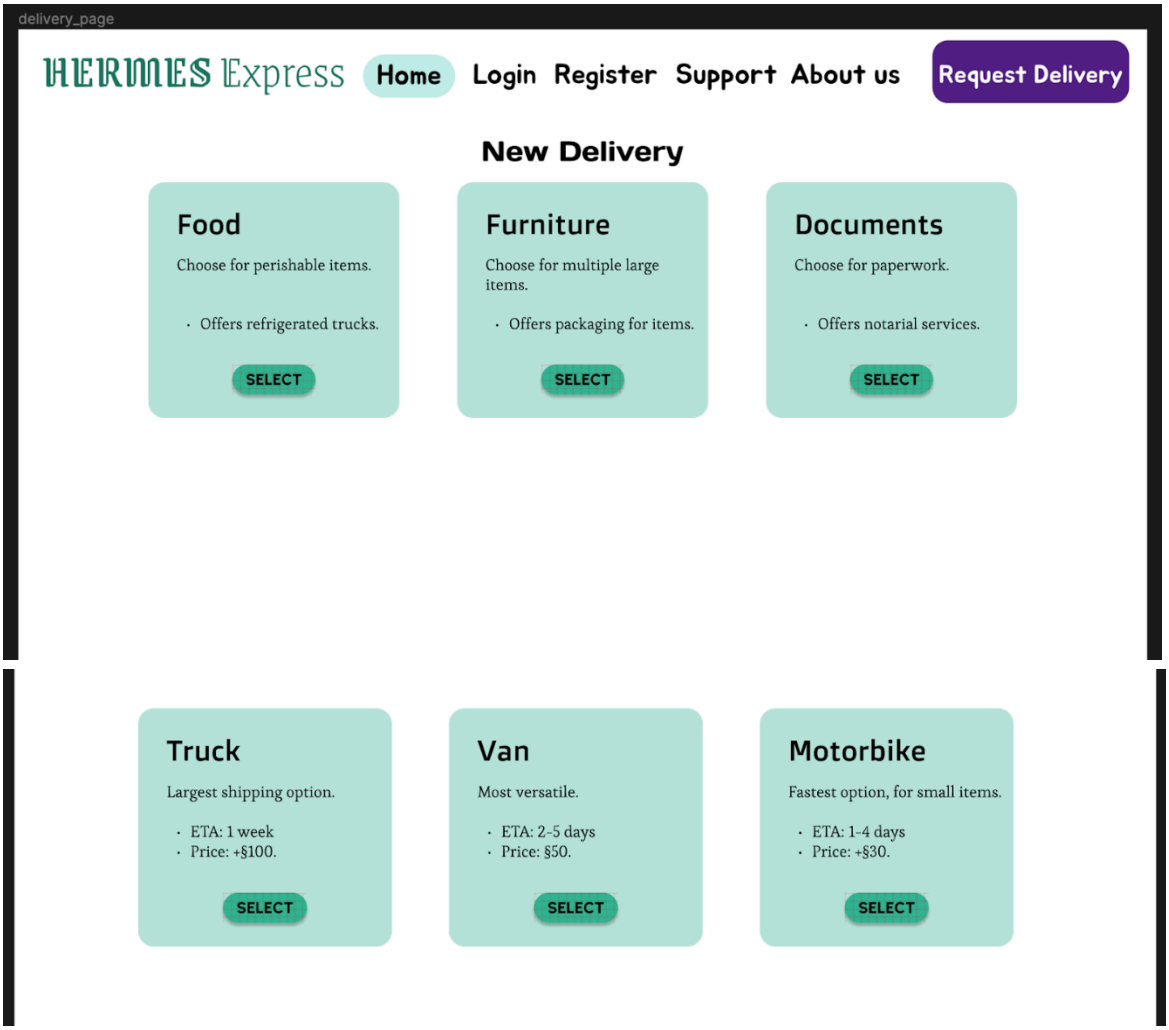
Home Page



Customer Service Page

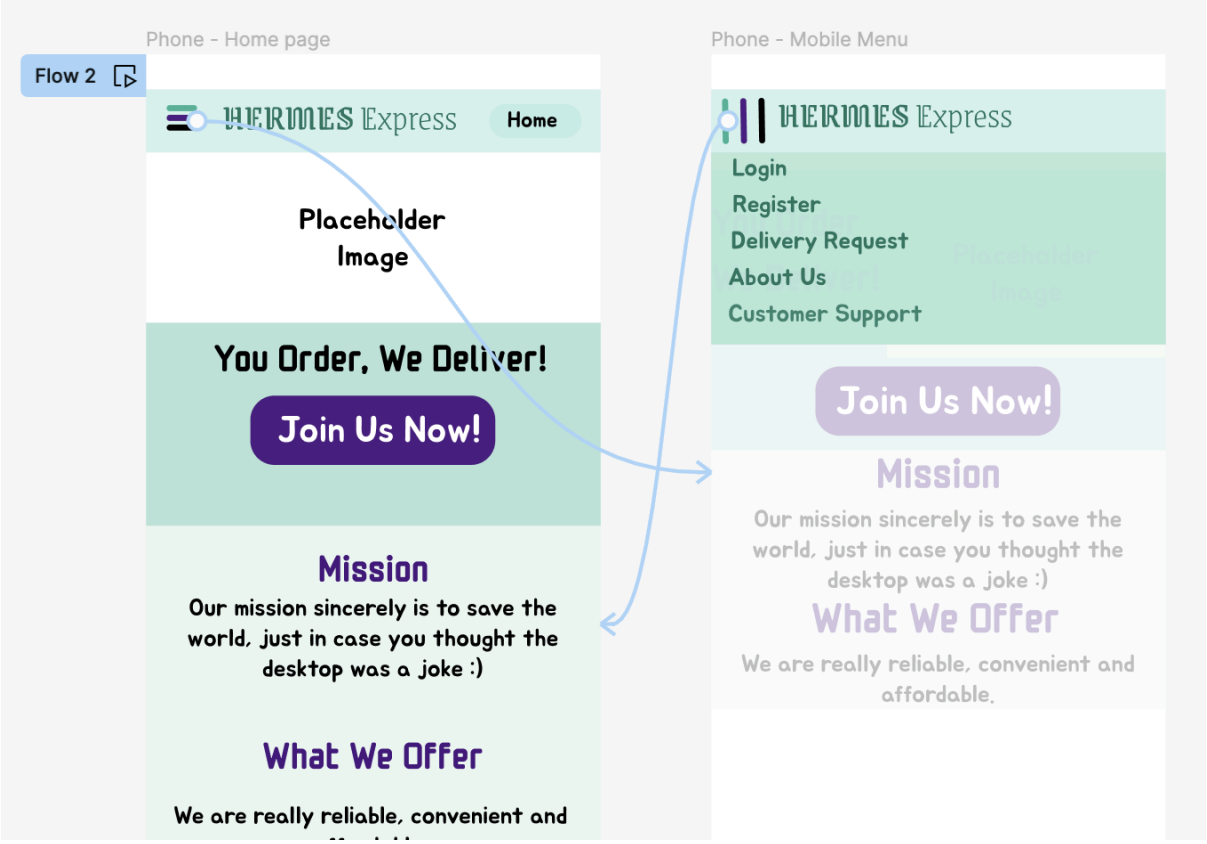


Request Delivery Page

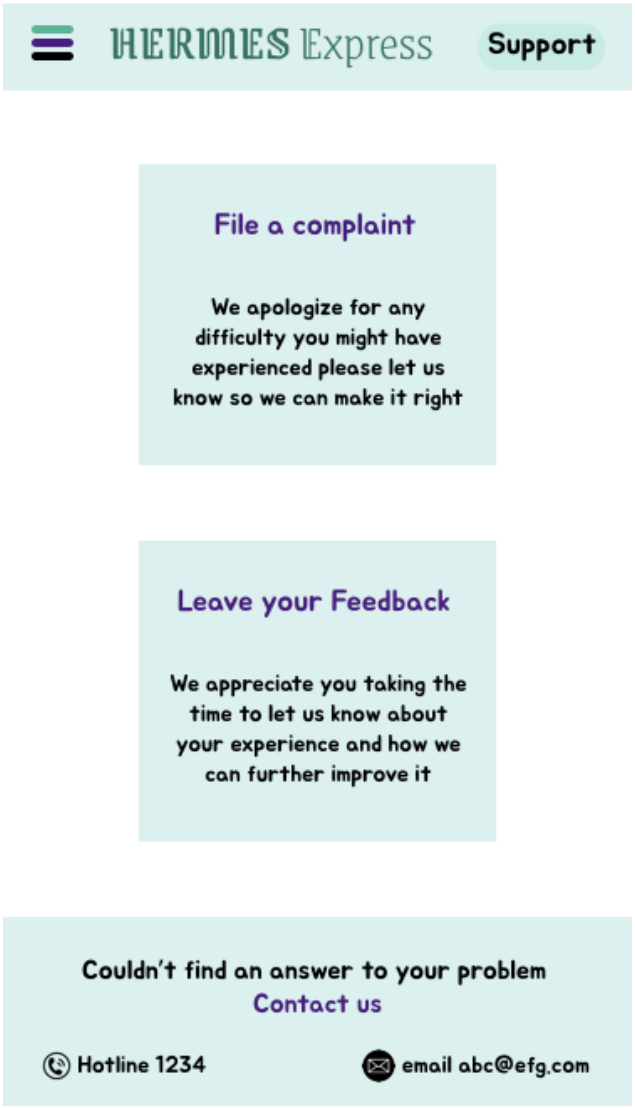


Mobile UI Design

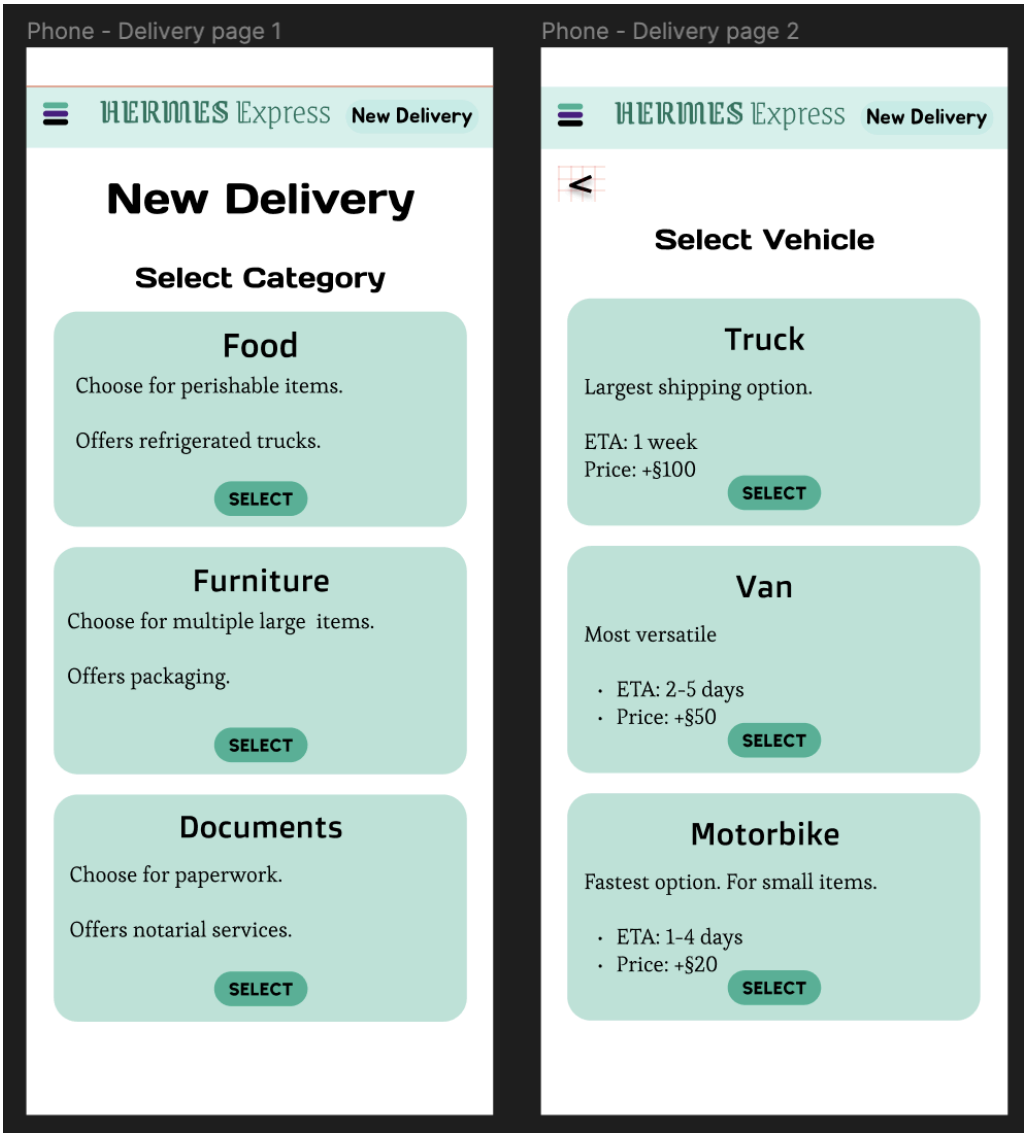
Home page



Customer service page



Request delivery page

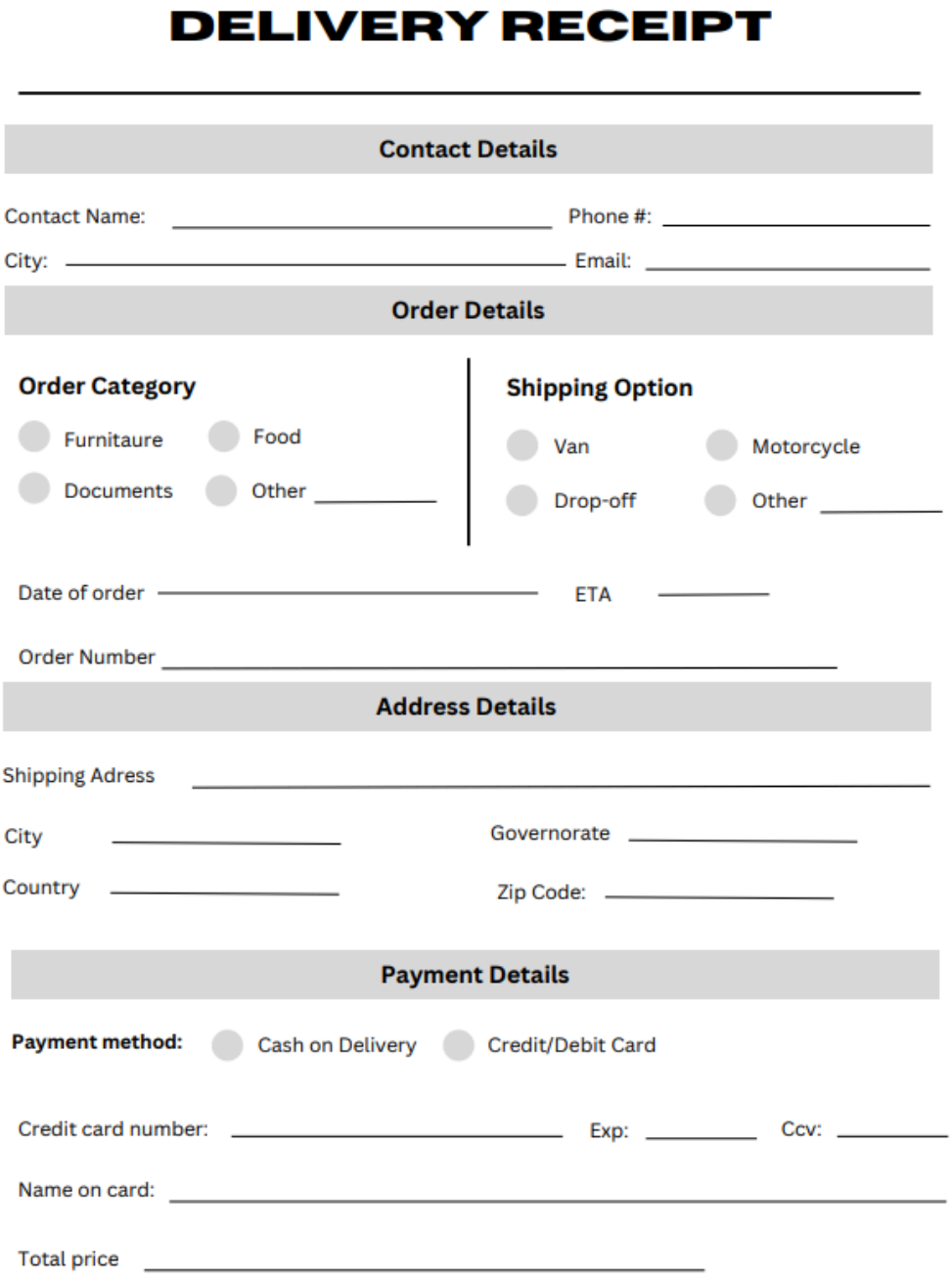


UI Design principles

- Visibility: is present in our UI using the contrastive color scheme and big fonts.
- Affordance: is present in our intuitive mobile menu design, suggesting to the user that multiple options are available should the button be clicked.
- Consistency: our design is consistent from desktop to mobile.
- Contuitty: is not yet applicable as there is only one release, however, we plan on maintaining continuity going forward.
- Discoverability: is present in the form of the back button looking like an arrow pointing backwards to suggest going to the previous page.
- Closure: as aforementioned, the forms the user fills are divided into separate pages where the user has the freedom to go forward or backward to undo their actions.
- Readability: is helped in our design through the high contrast in the color scheme chosen for the text that is shown and the buttons the user interacts with.
- Navigation: is accomplished in our menu and navigation buttons.
- Usability and efficiency: the design for the UI is very simple, accomplishing fast and efficient use by the user in checking their account or making a new delivery.

External Reports

*Designed Using Canva.



External report of a delivery order confirmation receipt to be received by the customer who made the order electronically for them to print if needed. It has all the details of the order and the transaction. This report is used later for any cancellation requests.

CANCELLATION RECEIPT

Contact Details

Contact Name: _____ Phone #: _____

City: _____ Email: _____

Delivery Details

Order Category

- Furnitaure
- Food
- Documents
- Other _____

Shipping Option

- Van
- Motorcycle
- Drop-off
- Other _____

Date of Order _____ ETA _____

Order Number _____ Price _____

Date of Return _____

Address Details

Return Address _____

City _____ Governorate _____

Country _____ Zip Code: _____

Reasons for cancellation

_____

_____

_____

External report of a delivery order cancellation receipt to be received by the customer who canceled an order electronically for them to print if needed. It has all the details of the canceled order, details of where and when the delivery will be returned, along with the amount of money returned.

Internal Reports

*Designed Using Canva.

Delivery Orders Summary Report

Order Number	Delivery category	Transport type	Total Quantity	Total Price
	Food	Truck	100	5000
	Furniture	Truck	10	12000
	Furniture	Van	4	3000
	Documents	Van	100	20000
	Electronics	Van	100	20000
	Other	Motorcycle	20	7000
	Other	Truck	100	5000
Total				

This internal report is given by the Delivery subsystem to the Logistics subsystem periodically which includes all received orders since the last report, this then allows the Logistics then to organize the deliveries to specific vehicles, assign available drivers to them etc... This acts as the backend process of deliveries within our system, ensuring that deliveries are performed in the most time and cost effective manner while minimizing any conflicts between them.

Performance Summary Report

Order Number	Transport type	Estimated time of arrival	Actual time of arrival	Delay Percentage
	Truck			
	Truck			
	Van			
	Van			
	Van			
	Van			
	Motorcycle			

This internal report is given by the Logistics subsystem to the Upper Management at set time intervals (daily/weekly etc..) including all completed deliveries since the last report, this gives managers a quick look into how the company is performing delivery-wise, such that performance increases as delay decreases and vice versa.